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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/371,760	08/10/1999	TOMOYUKI FUNAKI	25484.00750	9629

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EXAMINER

NOLAN, DANIEL A

ART UNIT

PAPER NUMBER

2655

28

DATE MAILED: 07/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/371,760	FUNAKI, TOMOYUKI
	Examiner Daniel A. Nolan	Art Unit 2655

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 02 June 2003.
- 2a) This action is **FINAL**.                                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 6-10,12,13 and 15-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 5,22,24 and 26 is/are allowed.
- 6) Claim(s) 6-10,12,13,15-21,23,25 and 27 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 10 August 1999 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_

## **DETAILED ACTION**

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Continued Examination Under 37 CFR 1.114***

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02 June 2003 has been entered.

### ***Response to Amendment***

3. The response filed 02 June 2003 has been entered to the following effect:
  - Claims 4 and 28 are cancelled and the rejections are withdrawn as moot – making claims 1-4, 11, 14 and 28 of the original claims being cancelled.
  - Claims 5, 6 and 22-27 are changed as indicated and examined on the merit.

***Response to Arguments***

4. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.
  
5. The indicated allowability of claims 12, 13, and 15-21 is withdrawn in view of the newly discovered reference(s) to Zimmerman<sup>789</sup> and Zimmerman et al<sup>196</sup>. Rejections based on the newly cited reference(s) follow.

***Claim Objections***

6. Claims 6, 12, 15 and 21 are objected to because of the following informalities:
  - Claims 6 and 15 should be “*determines in*” (7<sup>th</sup> lines) or claim 12 should be “*determining a*” (5<sup>th</sup> line). The Examiner is proceeding with the understanding that there is no significant difference between these same features of the claims.
  - In claim 21, a colon should follow “*comprises*” (2<sup>nd</sup> line).

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

**Zimmerman**<sup>789</sup>

7. Claims 6, 7, 12, 15, 23, 25 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Zimmerman<sup>789</sup> (U.S. Patent 5,287,789).
  
8. Regarding claim 6 as understood by the Examiner, Zimmerman et al reads on the features of the claim as follows:

- Zimmerman<sup>789</sup> discloses the feature that *an input section that receives sound signals to be analyzed* (2<sup>nd</sup> line of Abstract), *a pitch extraction section that extracts a pitch of a sound signal as it is received by said input section* (column 5 lines 21-22),
- Zimmerman<sup>789</sup> (column 9 lines 35-39) reads on the feature of a *scale designation section that selects a scale determining condition*;
- Zimmerman et al (column 14 lines 23-25) reads on the feature of a *note determination section that, in accordance with the scale determining condition selected by said scale designation section* (column 9 lines 42-45) *determines a particular one of scale notes which the pitch of the sound signal extracted by said pitch extraction section corresponds to* (illustrated in 22 of figure 1)
- Zimmerman<sup>789</sup> (claim 9 line 28) reads on the feature of a *display section that visually displays a current value of a characteristic of the sound signal and a*

*representative value determined by an extracted value of the characteristic in accordance with a predetermined criterion.*

9. Regarding claim 7, the claim is set forth with the same limits as claim 6. Zimmerman<sup>789</sup> (column 8 lines 18-20) teaches the feature that the *scale designation section can select one of a 12-tone scale and a 7-tone scale as the scale determining condition* (column 9 lines 35-36) as being selectable.
10. Regarding claims 12 and 15 as understood by the Examiner, the features of the claim are the same as those to be found in claim 6 and the claim is rejected for the same reasons.
11. Regarding claims 23, 25 and 27, Zimmerman<sup>789</sup> discloses the feature that *an input section that receives sound signals to be analyzed* (2<sup>nd</sup> line of Abstract), a *characteristic extraction section* (column 5 lines 21-22) that *extracts at least one of upper & lower pitch limits of a sound signal as it is received by said input section and a setting section used by* Zimmerman<sup>789</sup> (470 in figure 12) which discloses the feature *that sets various parameters for use in subsequent analysis of sound signals received by said input section in accordance with the pitch limits* (column 20 lines 7-8) *characteristics of the sound signal extracted by said characteristic extraction section, including at least a threshold value* (465 in figure 12) as well as reading on the feature *of a display section that visually displays the pitch limits characteristics.*

***Claim Rejections - 35 USC § 103***

12. The prior art of reference all analyze input audio into respective parameters, for various purposes: Zimmerman<sup>789</sup>, Humphrey et al and Tsurata et al analyze sounds for analog display and representation. Hoff, Jr. analyzes audio to generate synthesized output. Zimmerman et al<sup>196</sup> allow music to be manipulated. Gibson et al concentrates on determining precise pitch. These prior art references share common associations with music and audio signal processing at the time of the invention, and it would be expected to be within the ability of a person of ordinary skill in the art of signal processing to be applied to the instant application as cited below.

**Zimmerman<sup>789</sup> & Hoff, Jr.**

13. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zimmerman et al in view of Hoff, Jr. (U.S. Patent 4,771,671).

14. Regarding claim 8, the claim is set forth with the same limits as claim 7. Zimmerman<sup>789</sup> is capable of operating on intermediate alternative scales (column 9 line 36) but is silent on the specific ability to determine *non-diatonic and diatonic notes*.

Hoff, Jr. (202-208 in figure 2) reads on the feature that *to select the 7-tone scale, said scale designation section (202) can select one of (203) – a normal scale determining condition for only determining diatonic scale notes and (206, 208) – an*

*intermediate scale determining condition for determining non-diatonic scale notes as well as the diatonic scale notes.*

It would have been obvious to a person of ordinary skill in the art of audio signal processing at the time of the invention to apply the method/teachings of Hoff, Jr. to the device/method of Zimmerman<sup>789</sup> so as to properly represent half- and quarter-tones to continue the melodic style.

Zimmerman<sup>789</sup>, Hoff, Jr. & Humphrey et al

15. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zimmerman et al in view of Hoff, Jr. and further in view of Humphrey et al (U.S. Patent 3,894,186).

16. Regarding claim 9, the claim is set forth with the same limits as claim 8. Zimmerman<sup>789</sup> is silent on the feature of frequency ranges being set narrower. Humphrey et al (column 4 lines 42-67) teaches the feature that the *note determination section sets frequency ranges for determining the non-diatonic scale notes to be narrower than frequency ranges* (column 24 lines 1-5) reads on the feature of configuring *for determining the diatonic scale notes*. ... It would have been obvious to a person of ordinary skill in the art of audio signal processing at the time of the invention to apply the method/teachings of Humphrey et al to the device/method of Zimmerman<sup>789</sup> so as to accommodate different accompaniments.

**Zimmerman '789 & Zimmerman et al '196**

17. Claims 10, 13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zimmerman '789 in view of Zimmerman et al '196 (U.S. Patent 5,488,196).

18. Regarding claims 10, 13 and 16; the claims are set forth with the same limits as claims 6, 12 and 15, respectively. Zimmerman '789 does not mention *note duration*. Zimmerman et al '196 reads on the feature *that sets unit note length as a predetermined criterion for determining a note length* (claim 21a lines 63-66) and the feature *that determines a length of the scale note determined by said note determination section with an accuracy of the unit note length* (claim 21(d) line 12). ... It would have been obvious to a person of ordinary skill in the art of audio signal processing at the time of the invention to apply the method/teachings of Zimmerman et al '196 to the device/method of Zimmerman '789 so as to be able to adjust or “play in” notes without regard for time and edit the information later.

**Tsurata et al & Gibson et al**

19. Claims 17, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsurata et al (U.S. Patent 5,038,658) in view of Gibson et al (U.S. Patent 4,688,464).

20. Regarding claims 17, 19 and 20, Tsurata et al discloses *receiving a sound signal and automatically representing the sound signal in musical notation* in accord with the features of the claim as follows:

- Tsurata et al (input to figure 3) reads on the *1<sup>st</sup> step of receiving at least part of a sound signal to be represented in musical notation*,
- Tsurata et al (SP1 in figure 3) reads on the *extracting a characteristic of the received sound signal, and setting various parameters with the extracted characteristic*;

Tsurata et al (SP9 in figure 3 with SP240-242 in figure 38) reads on the *2<sup>nd</sup> step of setting a scale determining condition*.

Tsurata et al (left "pitch" input SP2 from SP1 in figure 3) reads on the *3<sup>rd</sup> step of receiving a sound signal to be represented in musical notation and determining a pitch of the sound signal using the various parameters set by said 1<sup>st</sup> step.*

Apart from *compiling musical score* (Abstract. Last 4 lines), Tsurata et al is silent on the issue of correlating pitch to the nearest note. Gibson et al (366-386 in figure 7) reads on the feature of a *4<sup>th</sup> step of (column 4 line 66) rounding the pitch determined by said 3<sup>rd</sup> step to any one of scale notes*. It would have been obvious to a person of ordinary skill in the art of audio signal processing at the time of the invention to apply the method/teachings of Gibson et al to the device/method of Tsurata et al so as to be able to depict the note that was determined technically in a style that can be read, musically.

**Tsurata et al, Gibson et al & Zimmerman et al**<sup>196</sup>

21. Claims 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsurata et al in view of Gibson et al and further in view of Zimmerman et al<sup>196</sup>.

22. Regarding claims 18 and 21; the claims are set forth with the same limits as claims 17 and 20, respectively. Tsurata et al discloses (column 8 lines 52-55) *determining a length of the scale note with an accuracy of the unit note length* but is silent as to setting the standard unit note length.

Zimmerman et al<sup>196</sup> reads on the feature *that sets unit note length as a predetermined criterion for determining a note length* (claim 21a lines 63-66), which would have been obvious to a person of ordinary skill in the art of audio signal processing at the time of the invention to apply the method/teachings of Zimmerman et al<sup>196</sup> to the device/method of Tsurata et al so as to be able to make the musical interval consistent.

***Allowable Subject Matter***

23. Claims 22 & 5, 24 and 26 are allowed.

24. As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

25. The following is a statement of reasons for the indication of allowable subject matter:

- Claims 22, 24 and 26 identify the uniquely distinct features of “*extracting volume levels, setting thresholds and displaying both levels and thresholds.*”
- The closest prior art, Zimmerman<sup>789</sup>, discloses the feature that *an input section that receives sound signals to be analyzed* (2<sup>nd</sup> line of the Abstract), a *characteristic extraction section that extracts a volume level of a sound signal as it is received by said input section* (“*amplitude*” in 4<sup>th</sup> line of the Abstract); and *sets various parameters for use in subsequent analysis of sound with the volume level of the sound signal extracted by said characteristic extraction section, including at least a threshold value* (column 17 lines 25-28) and displays keeping a pitch within range (figure 12).

Because the characteristics of volume and pitch are not intrinsically similar, the simultaneous display of both volume and volume thresholds would not be considered to be an intuitive equivalent of the pitch example and so the prior art of record fails to anticipate or render the above underlined limitations obvious.

- Claim 5 depends on a claim that was allowed and so does it become allowable as a consequence.

***Conclusion***

26. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

27. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Daniel A. Nolan at telephone (703) 305-1368 whose normal business hours are Mon, Tue, Thu & Fri, from 7 AM to 5 PM.

If attempts to contact the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To, can be reached at (703) 305-4827.

The fax phone number for Technology Center 2600 is (703) 872-9314. Label informal and draft communications as "DRAFT" or "PROPOSED", & designate formal communications as "EXPEDITED PROCEDURE".

Formal response to this action may be faxed according to the above instructions, or mailed to:

Commissioner of Patents and Trademarks  
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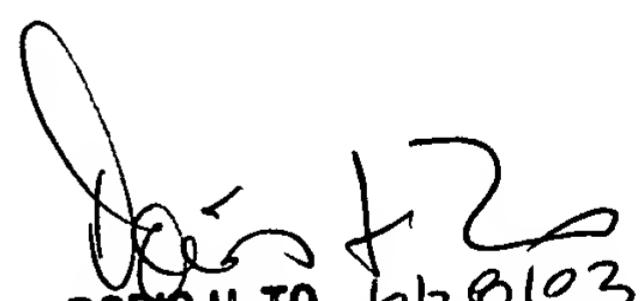
or hand-delivered to: Crystal Park 2,  
2121 Crystal Drive, Arlington, VA,  
Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to Technology Center 2600 Customer Service Office at telephone number (703) 306-0377.

Daniel A. Nolan  
Examiner  
Art Unit 2655

DAN/d

June 24, 2003

  
DORIS H. TO 6/26/03  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600